# Meiofauna Sled Samples from Campbell River Estuary and Discovery Passage 1982 - Calanoid Copepod Species Identification

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## Rapport statistique canadien des sciences halieutiques et aquatiques

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Les rapports statistiques sont produits à l'échelon régional, mais numérotés à l'échelon national. Les demandes de rapports seront satisfaites par l'établissement auteur dont le nom figure sur la couverture et la page du titre. Les rapports épuisés seront fournis contre rétribution par des agents commerciaux.

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Fisheries and Aquatic Sciences No. 483

# MEIOFAUNA SLED SAMPLES FROM CAMPBELL RIVER ESTUARY AND DISCOVERY PASSAGE 1982 - CALANOID COPEPOD SPECIES IDENTIFICATION

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## ABSTRACT

Brown, T. J., R. F. Clarke, and B. A. Kask. 1984. Meiofauna sled samples from Campbell River estuary and Discovery Passage 1982 - Calanoid copepod species identification. Can. Data Rep. Fish. Aquat. Sci. 483: 22 p.

Between March and December 1982 twenty sampling trips were made to the Campbell River estuary and Discovery Passage area. One hundred and forty-six epibenthic sleds were collected from eighteen sites and the calanoid copepods were identified to species. This report presents these data sorted by station and date.

## RÉSUMÉ

Brown, T. J., R. F. Clarke, and B. A. Kask. 1984. Meiofauna sled samples from Campbell River estuary and Discovery Passage 1982 - Calanoid copepod species identification. Can. Data Rep. Fish. Aquat. Sci. 483: 22 p.

De mars à décembre 1982, 20 expéditions d'échantillonnage ont été effectuées dans l'estuaire de la rivière Campbell et la région du passage Discovery. Les copépodes calanoïdes recueillis dans 146 traits de traîneau réalisés à 18 endroits de la zone épibenthique ont été identifiés jusqu'à l'espèce. Le présent rapport porte sur ces données classées selon la date et la station.

## INTRODUCTION

Data on the calanoid species collected in epibenthic sled samples from the Campbell River estuary and Discovery Passage in 1982 are presented here. The epibenthic sled samples were taken as part of a project to evaluate the importance of estuarine and alternate habitats to juvenile wild and hatchery salmonids.

## MATERIALS AND METHODS

The epibenthic sled samples (Sibert et al. 1977) were collected in conjunction with beach seining on twenty trips to the Campbell River area from March to December 1982 (Brown et al. 1983). The epibenthic sled had a mouth opening of 10 cm x 10 cm with a 100 μ net and was pulled along the shoreline for 5 m. Duplicate samples were collected at each site and preserved in 4% formalin and rose bengal.

In the laboratory the samples were decanted through a 44 sieve and counted on a dissecting microscope. Some samples were split using a folsom plankton splitter prior to counting and the organisms were identified to major taxonomic groups (Kask et al. 1984). The first one hundred harpacticoids and calanoids were collected for identification to species where possible.

The data have been corrected by the split factor where applicable and a correction factor (total calanoids / total calanoids identified x calanoid species). This gives the species identified as counts proportional to the total calanoids in the sample and were rounded to the nearest animal.

## RESULTS

Seven stations were sampled in the estuary, four in the transition zone (Fig. 1) and seven in the marine zone (Fig. 2). Detailed site descriptions may be found in Brown et al. 1983.

There were seventy estuarine, twelve transition and sixty-four marine samples taken during the twenty sampling trips. The data have been sorted by station and date and the mean of the duplicate sled samples calculated. Tide type (ebbing or flooding) and height (m), temperature and salinity are also listed for each station. Any data that were not recorded is represented by -9.

The number of samples collected from each site may be found in Table 1 and the calanoid species identification in Table 2.

## ACKNOWLEDGMENTS

We would like to thank Drs C. D. McAllister, C. D. Levings, F. C. Withler, and Messers M. Kotyk and D. K. Gordon for their assistance in the field sampling.

## REFERENCES

Sibert, J., B. A. Kask and T. J. Brown. 1977. A diver-operated sled for sampling the epibenthos. Fish. Mar. Serv. Tech. Rep. 738: 19 p.

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Kask, B. A., and T. J. Brown. 1984. Meiofauna sled samples from Campbell River Estuary and Discovery Passage 1982. Can. Data Rep. Fish. Aquat. Sci. (in press).

Table 1. Station numbers by zone and number of samples collected.

| Stn. #* | Name | No. of samples |
|---|---|---|
| Estuarine zone | | |
| 1 | Mother Ramp | 2 |
| 2 | Nunn's Island | 2 |
| 3 | Nunn's Creek | 16 |
| 7 | North Baikie Mouth | 30 |
| 13 | Island #2 | 2 |
| 17 | Island #3 | 8 |
| 18 | Island #4 | 10 |
| Transition zone | | |
| 4 | Spit | 2 |
| 5 | Bar | 2 |
| 20 | Boat Ramp | 2 |
| 34 | Painter's Channel | 6 |
| Marine zone | | |
| 23 | Middle Point | 2 |
| 24 | Menzies Bay | 2 |
| 25 | Maude Beach | 2 |
| 27 | Outer Gowlland | 28 |
| 31 | Plumper Bay | 24 |
| 32 | Deepwater Bay | 4 |
| 281 | South Gowlland | 2 |

*Brown et al. 1983.

Table 2. Calanoid species identification - missing data is represented by -9.

| | |
|---|---|
| UCOP | Unidentified copepodites |
| CYGR | Cyclopina gracilis |
| ONSP | Oncaea species |
| NEPL | Neocalanus plumchrus |
| OISP | Oithona species |
| PAPA | Paracalanus parvus |
| PSMI | Pseudocalanus minutus |
| MISP | Metridia species |
| COSP | Corycaeus species |
| ACLO | Acartia longiremis |
| MEPA | Metridia pacifica |
| MIPP | Microcalanus pygmaeus pusillus |
| AEDI | Aetidius divergens |
| EUAM | Eurytemora americana |
| EPLO | Epilabidocera longipedata |
| CALU | Calanoid 'u' |
| TODI | Tortanus discaudatus |
| SCMI | Scolecithricella minor |
| CASP | Calanus species |
| CEAB | Centropages abdominalis |
| EUAF | Eurytemora affinis |
| CYSP | Cyclops species |
| DISP | Diaptomus species |
| UNCY | Unidentified cyclopoids |

| | | | |
|---|---|---|---|
| DATE | 821214 | 821214 | 821214 |
| TIME | 1810 | 1810 | 1810 |
| STATION | 1 | 1 | 1 |
| TIDE | E3.1 | E3.1 | E3.1 |
| TEMPERATURE | 6.5 | 6.5 | 6.5 |
| SALINITY | 10.0 | 10.0 | 10.0 |
| SLED NO. | 1 | 2 | MEAN |
| TOTAL CALANOIDS | 4 | 5 | |
| NO. IDENTIFIED | 4 | 5 | |
| UCOP | 2.0 | 0.0 | 1.0 |
| UNCY | 2.0 | 5.0 | 3.5 |

| | | | |
|---|---|---|---|
| DATE | 820517 | 820517 | 820517 |
| TIME | 1945 | 1945 | 1945 |
| STATION | 2 | 2 | 2 |
| TIDE | F2.2 | F2.2 | F2.2 |
| TEMPERATURE | -9.0 | -9.0 | -9.0 |
| SALINITY | -9.0 | -9.0 | -9.0 |
| SLED NO. | 1 | 2 | MEAN |
| TOTAL CALANOIDS | 3 | 0 | |
| NO. IDENTIFIED | 3 | 0 | |
| ONSP | 1.0 | 0.0 | 0.5 |
| CYSP | 2.0 | 0.0 | 1.0 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DATE | 820323 | 820323 | 820323 | 820405 | 820405 | 820405 | 820413 | 820413 | 820413 | 820503 | 820503 | 820503 |
| TIME | 2100 | 2100 | 2100 | 2040 | 2040 | 2040 | 1436 | 1436 | 1436 | 2140 | 2140 | 2140 |
| STATION | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| TIDE | E1.9 | E1.9 | E1.9 | E1.9 | E1.9 | E1.9 | E1.4 | E1.4 | E1.4 | F2.5 | F2.5 | F2.5 |
| TEMPERATURE | 7.0 | 7.0 | 7.0 | 6.6 | 6.6 | 6.6 | 7.3 | 7.3 | 7.3 | 8.3 | 8.3 | 8.3 |
| SALINITY | 0.0 | 0.0 | 0.0 | 1.1 | 1.1 | 1.1 | 7.7 | 7.7 | 7.7 | 1.0 | 1.0 | 1.0 |
| SLED NO. | 1 | 2 | MEAN | 1 | 2 | MEAN | 1 | 2 | MEAN | 1 | 2 | MEAN |
| TOTAL CALANOIDS | 1 | 1 | | 3 | 8 | | 4 | 2 | | 3 | 11 | |
| NO. IDENTIFIED | 1 | 1 | | 3 | 8 | | 4 | 2 | | 3 | 11 | |
| UCOP | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 |
| ONSP | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| NEPL | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| OISP | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.5 | 1.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 |
| PSMI | 0.0 | 0.0 | 0.0 | 0.0 | 3.0 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| CYSP | 1.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 3.0 | 6.0 | 4.5 |
| UNCY | 0.0 | 0.0 | 0.0 | 1.0 | 2.0 | 1.5 | 1.0 | 1.0 | 1.0 | 0.0 | 5.0 | 2.5 |

| DATE | 820526 | 820526 | 820526 | 820605 | 820605 | 820605 | 820617 | 820617 | 820617 | 821109 | 821109 | 821109 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIME | 1450 | 1450 | 1450 | 752 | 752 | 752 | 745 | 745 | 745 | 345 | 345 | 345 |
| STATION | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| TIDE | F0.6 | F0.6 | F0.6 | E2.2 | E2.2 | E2.2 | E1.7 | E1.7 | E1.7 | E1.9 | E1.9 | E1.9 |
| TEMPERATURE | 13.5 | 13.5 | 13.5 | -9.0 | -9.0 | -9.0 | 15.0 | 15.0 | 15.0 | 8.0 | 8.0 | 8.0 |
| SALINITY | 8.0 | 8.0 | 8.0 | -9.0 | -9.0 | -9.0 | 3.0 | 3.0 | 3.0 | 0.0 | 0.0 | 0.0 |
| SLED NO. | 1 | 2 | MEAN | 1 | 2 | MEAN | 1 | 2 | MEAN | 1 | 2 | MEAN |
| TOTAL CALANOIDS | 0 | 2 | | 1 | 1 | | 6 | 2 | | 12 | 8 | |
| NO. IDENTIFIED | 0 | 2 | | 1 | 1 | | 5 | 2 | | 11 | 7 | |
| UCOP | 0.0 | 2.0 | 1.0 | 1.0 | 0.0 | 0.5 | 3.0 | 1.0 | 2.0 | 0.0 | 0.0 | 0.0 |
| ONSP | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 |
| COSP | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 |
| CYSP | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.5 | 1.0 | 0.0 | 0.5 | 12.0 | 8.0 | 10.0 |

| DATE | 820405 | 820405 | 820405 |
|---|---|---|---|
| TIME | 1551 | 1551 | 1551 |
| STATION | 4 | 4 | 4 |
| TIDE | E3.4 | E3.4 | E3.4 |
| TEMPERATURE | 6.9 | 6.9 | 6.9 |
| SALINITY | 13.2 | 13.2 | 13.2 |
| SLED NO. | 1 | 2 | MEAN |
| TOTAL CALANOIDS | 466 | 617 | |
| NO. IDENTIFIED | 137 | 572 | |
| UCOP | 88.0 | 107.0 | 97.5 |
| ONSP | 113.0 | 44.0 | 78.5 |
| NEPL | 54.0 | 111.0 | 82.5 |
| OISP | 105.0 | 111.0 | 108.0 |
| PSMI | 92.0 | 227.0 | 159.5 |
| MISP | 3.0 | 3.0 | 3.0 |
| COSP | 0.0 | 3.0 | 1.5 |
| ACLO | 3.0 | 4.0 | 3.5 |
| EPLO | 0.0 | 2.0 | 1.0 |
| CEAB | 0.0 | 2.0 | 1.0 |
| CYSP | 0.0 | 1.0 | 0.5 |
| UNCY | 7.0 | 1.0 | 4.0 |

| | | | |
|---|---|---|---|
| DATE | 820323 | 820323 | 820323 |
| TIME | 2235 | 2235 | 2235 |
| STATION | 5 | 5 | 5 |
| TIDE | E1.4 | E1.4 | E1.4 |
| TEMPERATURE | 4.0 | 4.0 | 4.0 |
| SALINITY | 0.0 | 0.0 | 0.0 |
| SLED NO. | 1 | 2 | MEAN |
| TOTAL CALANOIDS | 5 | 0 | |
| NO. IDENTIFIED | 5 | 0 | |
| CYSP | 5.0 | 0.0 | 2.5 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DATE | 820323 | 820323 | 820323 | 820405 | 820405 | 820405 | 820428 | 820428 | 820428 | 820505 | 820505 | 820505 |
| TIME | 2310 | 2310 | 2310 | 1452 | 1452 | 1452 | 1025 | 1025 | 1025 | 915 | 915 | 915 |
| STATION | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| TIDE | F1.4 | F1.4 | F1.4 | E3.7 | E3.7 | E3.7 | E2.5 | E2.5 | E2.5 | E1.9 | E1.9 | E1.9 |
| TEMPERATURE | 4.0 | 4.0 | 4.0 | 5.9 | 5.9 | 5.9 | 7.5 | 7.5 | 7.5 | -9.0 | -9.0 | -9.0 |
| SALINITY | 0.0 | 0.0 | 0.0 | 0.8 | 0.8 | 0.8 | 0.0 | 0.0 | 0.0 | -9.0 | -9.0 | -9.0 |
| SLED NO. | 1 | 2 | MEAN | 1 | 2 | MEAN | 1 | 2 | MEAN | 1 | 2 | MEAN |
| TOTAL CALANOIDS | 2 | 1 | | 3 | 6 | | 7 | 3 | | 8 | 3 | |
| NO. IDENTIFIED | 1 | 1 | | 3 | 5 | | 7 | 3 | | 8 | 3 | |
| UCOP | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 1.0 | 4.0 | 0.0 | 2.0 |
| ONSP | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 0.0 | 1.0 | 0.5 |
| NEPL | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.5 |
| OISP | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.0 | 0.0 | 1.5 | 0.0 | 0.0 | 0.0 |
| PSMI | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 |
| MISP | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.5 |
| CYSP | 2.0 | 0.0 | 1.0 | 3.0 | 6.0 | 4.5 | 0.0 | 1.0 | 0.5 | 1.0 | 1.0 | 1.0 |
| UNCY | 0.0 | 1.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.5 | 2.0 | 0.0 | 1.0 |

| DATE | 820517 | 820517 | 820517 | 820606 | 820606 | 820606 | 820616 | 820616 | 820616 | 820629 | 820629 | 820629 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIME | 1330 | 1330 | 1330 | 850 | 850 | 850 | 1250 | 1250 | 1250 | 1443 | 1443 | 1443 |
| STATION | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| TIDE | E2.9 | E2.9 | E2.9 | E1.9 | E1.9 | E1.9 | F3.3 | F3.3 | F3.3 | E2.9 | E2.9 | E2.9 |
| TEMPERATURE | -9.0 | -9.0 | -9.0 | 13.5 | 13.5 | 13.5 | 16.0 | 16.0 | 16.0 | 16.5 | 16.5 | 16.5 |
| SALINITY | -9.0 | -9.0 | -9.0 | -9.0 | -9.0 | -9.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| SLED NO. | 1 | 2 | MEAN | 1 | 2 | MEAN | 1 | 2 | MEAN | 1 | 2 | MEAN |
| TOTAL CALANOIDS | 0 | 2 | | 1 | 3 | | 12 | 5 | | 8 | 8 | |
| NO. IDENTIFIED | 0 | 2 | | 1 | 2 | | 10 | 5 | | 8 | 8 | |
| UCOP | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 2.0 | 1.5 |
| OISP | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.5 |
| PSMI | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.5 |
| CYSP | 0.0 | 2.0 | 1.0 | 0.0 | 0.0 | 0.0 | 7.0 | 2.0 | 4.5 | 5.0 | 5.0 | 5.0 |
| DISP | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.5 |
| UNCY | 0.0 | 0.0 | 0.0 | 1.0 | 3.0 | 2.0 | 5.0 | 3.0 | 4.0 | 0.0 | 0.0 | 0.0 |

| DATE | 820709 | 820709 | 820709 | 820721 | 820721 | 820721 | 820804 | 820804 | 820804 | 820910 | 820910 | 820910 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIME | 1455 | 1455 | 1455 | 757 | 757 | 757 | 1935 | 1935 | 1935 | 745 | 745 | 745 |
| STATION | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| TIDE | F1.6 | F1.6 | F1.6 | E2.2 | E2.2 | E2.2 | E3.9 | E3.9 | E3.9 | F2.3 | F2.3 | F2.3 |
| TEMPERATURE | 16.0 | 16.0 | 16.0 | 14.0 | 14.0 | 14.0 | 15.0 | 15.0 | 15.0 | -9.0 | -9.0 | -9.0 |
| SALINITY | 1.0 | 1.0 | 1.0 | 4.0 | 4.0 | 4.0 | 0.0 | 0.0 | 0.0 | -9.0 | -9.0 | -9.0 |
| SLED NO. | 1 | 2 | MEAN | 1 | 2 | MEAN | 1 | 2 | MEAN | 1 | 2 | MEAN |
| TOTAL CALANOIDS | 6 | 2 | | 7 | 2 | | 2 | 4 | | 18 | 4 | |
| NO. IDENTIFIED | 6 | 2 | | 7 | 2 | | 2 | 4 | | 16 | 3 | |
| UCOP | 5.0 | 1.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.0 | 1.5 | 13.0 | 4.0 | 8.5 |
| OISP | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 3.0 | 0.0 | 1.5 |
| PAPA | 1.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 |
| COSP | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.5 |
| CYSP | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 |
| UNCY | 0.0 | 1.0 | 0.5 | 4.0 | 2.0 | 3.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.5 |

| DATE | 820929 | 820929 | 820929 | 821109 | 821109 | 821109 | 821214 | 821214 | 821214 |
|---|---|---|---|---|---|---|---|---|---|
| TIME | 825 | 825 | 825 | 520 | 520 | 520 | 900 | 900 | 900 |
| STATION | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| TIDE | E1.6 | E1.6 | E1.6 | E1.6 | E1.6 | E1.6 | E3.9 | E3.9 | E3.9 |
| TEMPERATURE | 13.0 | 13.0 | 13.0 | 9.0 | 9.0 | 9.0 | 6.5 | 6.5 | 6.5 |
| SALINITY | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| SLED NO. | 1 | 2 | MEAN | 1 | 2 | MEAN | 1 | 2 | MEAN |
| TOTAL CALANOIDS | 5 | 0 | | 2 | 0 | | 0 | 1 | |
| NO. IDENTIFIED | 5 | 0 | | 2 | 0 | | 0 | 1 | |
| UCOP | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.5 |
| OISP | 1.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| PSMI | 1.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| CYSP | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 |
| UNCY | 3.0 | 0.0 | 1.5 | 1.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 |

| | | | |
|---|---|---|---|
| DATE | 820617 | 820617 | 820617 |
| TIME | 1205 | 1205 | 1205 |
| STATION | 13 | 13 | 13 |
| TIDE | F2.6 | F2.6 | F2.6 |
| TEMPERATURE | 17.0 | 17.0 | 17.0 |
| SALINITY | 1.0 | 1.0 | 1.0 |
| SLED NO. | 1 | 2 | MEAN |
| TOTAL CALANOIDS | 11 | 7 | |
| NO. IDENTIFIED | 10 | 7 | |
| UCOP | 0.0 | 1.0 | 0.5 |
| CYSP | 8.0 | 6.0 | 7.0 |
| DISP | 2.0 | 0.0 | 1.0 |
| UNCY | 1.0 | 0.0 | 0.5 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DATE | 820323 | 820323 | 820323 | 820405 | 820405 | 820405 | 820413 | 820413 | 820413 | 820503 | 820503 | 820503 |
| TIME | 1550 | 1550 | 1550 | 1950 | 1950 | 1950 | 1640 | 1640 | 1640 | 1930 | 1930 | 1930 |
| STATION | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |
| TIDE | E3.7 | E3.7 | E3.7 | E2.0 | E2.0 | E2.0 | F2.0 | F2.0 | F2.0 | E2.2 | E2.2 | E2.2 |
| TEMPERATURE | -9.0 | -9.0 | -9.0 | 5.2 | 5.2 | 5.2 | 5.7 | 5.7 | 5.7 | -9.0 | -9.0 | -9.0 |
| SALINITY | -9.0 | -9.0 | -9.0 | 0.2 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | -9.0 | -9.0 | -9.0 |
| SLED NO. | 1 | 2 | MEAN | 1 | 2 | MEAN | 1 | 2 | MEAN | 1 | 2 | MEAN |
| TOTAL CALANOIDS | 7 | 3 | | 18 | 12 | | 15 | 26 | | 15 | 13 | |
| NO. IDENTIFIED | 7 | 2 | | 7 | 12 | | 15 | 26 | | 14 | 13 | |
| UCOP | 0.0 | 0.0 | 0.0 | 7.0 | 4.0 | 5.5 | 3.0 | 0.0 | 1.5 | 0.0 | 0.0 | 0.0 |
| ONSP | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.5 | 0.0 | 0.0 | 0.0 |
| OISP | 1.0 | 0.0 | 0.5 | 1.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| PSMI | 0.0 | 0.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| COSP | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| CEAB | 1.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| CYSP | 4.0 | 1.0 | 2.5 | 0.0 | 0.0 | 0.0 | 5.0 | 8.0 | 6.5 | 10.0 | 10.0 | 10.0 |
| UNCY | 1.0 | 2.0 | 1.5 | 5.0 | 6.0 | 5.5 | 7.0 | 17.0 | 12.0 | 5.0 | 3.0 | 4.0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DATE | 820413 | 820413 | 820413 | 820503 | 820503 | 820503 | 820517 | 820517 | 820517 | 820528 | 820528 | 820528 |
| TIME | 1620 | 1620 | 1620 | 1910 | 1910 | 1910 | 1830 | 1830 | 1830 | 1125 | 1125 | 1125 |
| STATION | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 |
| TIDE | F1.9 | F1.9 | F1.9 | E2.2 | E2.2 | E2.2 | F1.9 | F1.9 | F1.9 | E2.5 | E2.5 | E2.5 |
| TEMPERATURE | 6.8 | 6.8 | 6.8 | 8.0 | 8.0 | 8.0 | -9.0 | -9.0 | -9.0 | -9.0 | -9.0 | -9.0 |
| SALINITY | 0.7 | 0.7 | 0.7 | 0.3 | 0.3 | 0.3 | -9.0 | -9.0 | -9.0 | -9.0 | -9.0 | -9.0 |
| SLED NO. | 1 | 2 | MEAN | 1 | 2 | MEAN | 1 | 2 | MEAN | 1 | 2 | MEAN |
| TOTAL CALANOIDS | 5 | 10 | | 67 | 73 | | 4 | 5 | | 18 | 2 | |
| NO. IDENTIFIED | 5 | 10 | | 65 | 70 | | 4 | 5 | | 18 | 2 | |
| UCOP | 0.0 | 6.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.5 |
| NEPL | 0.0 | 1.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| CYSP | 1.0 | 3.0 | 2.0 | 67.0 | 64.0 | 65.5 | 2.0 | 2.0 | 2.0 | 6.0 | 0.0 | 3.0 |
| UNCY | 4.0 | 0.0 | 2.0 | 0.0 | 9.0 | 4.5 | 2.0 | 3.0 | 2.5 | 11.0 | 2.0 | 6.5 |

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|---|---|---|---|
| DATE | 820605 | 820605 | 820605 |
| TIME | 1437 | 1437 | 1437 |
| STATION | 18 | 18 | 18 |
| TIDE | F2.6 | F2.6 | F2.6 |
| TEMPERATURE | -9.0 | -9.0 | -9.0 |
| SALINITY | -9.0 | -9.0 | -9.0 |
| SLED NO. | 1 | 2 | MEAN |
| TOTAL CALANOIDS | 2 | 1 | |
| NO. IDENTIFIED | 2 | 1 | |
| NEPL | 2.0 | 0.0 | 1.0 |
| CYSP | 0.0 | 1.0 | 0.5 |

| | | | |
|---|---|---|---|
| DATE | 820413 | 820413 | 820413 |
| TIME | 1910 | 1910 | 1910 |
| STATION | 20 | 20 | 20 |
| TIDE | F2.9 | F2.9 | F2.9 |
| TEMPERATURE | 7.5 | 7.5 | 7.5 |
| SALINITY | 30.5 | 30.5 | 30.5 |
| SLED NO. | 1 | 2 | MEAN |
| TOTAL CALANOIDS | 28 | 21 | |
| NO. IDENTIFIED | 28 | 21 | |
| UCOP | 11.0 | 10.0 | 10.5 |
| ONSP | 1.0 | 2.0 | 1.5 |
| NEPL | 2.0 | 1.0 | 1.5 |
| OISP | 8.0 | 5.0 | 6.5 |
| PSMI | 2.0 | 3.0 | 2.5 |
| ACLO | 1.0 | 0.0 | 0.5 |
| CEAB | 1.0 | 0.0 | 0.5 |
| UNCY | 2.0 | 0.0 | 1.0 |

| | | | |
|---|---|---|---|
| DATE | 820605 | 820605 | 820605 |
| TIME | 935 | 935 | 935 |
| STATION | 23 | 23 | 23 |
| TIDE | E1.4 | E1.4 | E1.4 |
| TEMPERATURE | -9.0 | -9.0 | -9.0 |
| SALINITY | -9.0 | -9.0 | -9.0 |
| SLED NO. | 1 | 2 | MEAN |
| TOTAL CALANOIDS | 364 | 104 | |
| NO. IDENTIFIED | 90 | 26 | |
| NEPL | 360.0 | 96.0 | 228.0 |
| OISP | 0.0 | 8.0 | 4.0 |
| ACLO | 4.0 | 0.0 | 2.0 |

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|---|---|---|---|
| DATE | 820818 | 820818 | 820818 |
| TIME | 845 | 845 | 845 |
| STATION | 24 | 24 | 24 |
| TIDE | E1.2 | E1.2 | E1.2 |
| TEMPERATURE | 11.0 | 11.0 | 11.0 |
| SALINITY | 29.0 | 29.0 | 29.0 |
| SLED NO. | 1 | 2 | MEAN |
| TOTAL CALANOIDS | 96 | 160 | |
| NO. IDENTIFIED | 6 | 10 | |
| UCOP | 48.0 | 0.0 | 24.0 |
| CYGR | 48.0 | 160.0 | 104.0 |

| | | | |
|---|---|---|---|
| DATE | 820708 | 820708 | 820708 |
| TIME | 1200 | 1200 | 1200 |
| STATION | 25 | 25 | 25 |
| TIDE | E0.9 | E0.9 | E0.9 |
| TEMPERATURE | 13.0 | 13.0 | 13.0 |
| SALINITY | 24.0 | 24.0 | 24.0 |
| SLED NO. | 1 | 2 | MEAN |
| TOTAL CALANOIDS | 48 | 32 | |
| NO. IDENTIFIED | 3 | 1 | |
| UCOP | 32.0 | 32.0 | 32.0 |
| CYGR | 16.0 | 0.0 | 8.0 |

| DATE | 820323 | 820323 | 820323 | 820406 | 820406 | 820406 | 820427 | 820427 | 820427 | 820504 | 820504 | 820504 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIME | 1125 | 1125 | 1125 | 1331 | 1331 | 1331 | 1545 | 1545 | 1545 | 1335 | 1335 | 1335 |
| STATION | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| TIDE | F2.8 | F2.8 | F2.8 | F3.1 | F3.1 | F3.1 | F0.8 | F0.8 | F0.8 | F3.1 | F3.1 | F3.1 |
| TEMPERATURE | -9.0 | -9.0 | -9.0 | 9.3 | 9.3 | 9.3 | 8.0 | 8.0 | 8.0 | 9.0 | 9.0 | 9.0 |
| SALINITY | -9.0 | -9.0 | -9.0 | 30.9 | 30.9 | 30.9 | 27.0 | 27.0 | 27.0 | 28.0 | 28.0 | 28.0 |
| SLED NO. | 1 | 2 | MEAN | 1 | 2 | MEAN | 1 | 2 | MEAN | 1 | 2 | MEAN |
| TOTAL CALANOIDS | 43 | 61 | | 229 | 198 | | 295 | 424 | | 721 | 565 | |
| NO. IDENTIFIED | 37 | 47 | | 162 | 140 | | 93 | 84 | | 174 | 186 | |
| UCOP | 19.0 | 14.0 | 16.5 | 37.0 | 44.0 | 40.5 | 70.0 | 76.0 | 73.0 | 199.0 | 103.0 | 151.0 |
| ONSP | 0.0 | 0.0 | 0.0 | 71.0 | 61.0 | 66.0 | 67.0 | 56.0 | 61.5 | 315.0 | 235.0 | 275.0 |
| NEPL | 0.0 | 0.0 | 0.0 | 23.0 | 7.0 | 15.0 | 6.0 | 10.0 | 8.0 | 137.0 | 152.0 | 144.5 |
| OISP | 23.0 | 36.0 | 29.5 | 91.0 | 86.0 | 88.5 | 104.0 | 151.0 | 127.5 | 41.0 | 30.0 | 35.5 |
| PSMI | 0.0 | 6.0 | 3.0 | 3.0 | 0.0 | 1.5 | 32.0 | 45.0 | 38.5 | 21.0 | 33.0 | 27.0 |
| MISP | 1.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 16.0 | 86.0 | 51.0 | 8.0 | 12.0 | 10.0 |
| COSP | 0.0 | 0.0 | 0.0 | 4.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| AEDI | 0.0 | 4.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| SCMI | 0.0 | 1.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DATE | 820518 | 820518 | 820518 | 820527 | 820527 | 820527 | 820616 | 820616 | 820616 | 820628 | 820628 | 820628 |
| TIME | 930 | 930 | 930 | 1355 | 1355 | 1355 | 1910 | 1910 | 1910 | 1410 | 1410 | 1410 |
| STATION | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| TIDE | F2.3 | F2.3 | F2.3 | E0.6 | E0.6 | E0.6 | F2.6 | F2.6 | F2.6 | E2.6 | E2.6 | E2.6 |
| TEMPERATURE | 9.8 | 9.8 | 9.8 | 10.0 | 10.0 | 10.0 | 14.0 | 14.0 | 14.0 | 13.0 | 13.0 | 13.0 |
| SALINITY | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | 23.0 | 23.0 | 23.0 | 28.0 | 28.0 | 28.0 |
| SLED NO. | 1 | 2 | MEAN | 1 | 2 | MEAN | 1 | 2 | MEAN | 1 | 2 | MEAN |
| TOTAL CALANOIDS | 95 | 96 | | 347 | 325 | | 40 | 52 | | 67 | 66 | |
| NO. IDENTIFIED | 90 | 93 | | 97 | 102 | | 36 | 26 | | 65 | 61 | |
| UCOP | 17.0 | 21.0 | 19.0 | 14.0 | 32.0 | 23.0 | 18.0 | 14.0 | 16.0 | 44.0 | 32.0 | 38.0 |
| ONSP | 5.0 | 5.0 | 5.0 | 36.0 | 32.0 | 34.0 | 1.0 | 2.0 | 1.5 | 1.0 | 4.0 | 2.5 |
| NEPL | 27.0 | 13.0 | 20.0 | 254.0 | 228.0 | 241.0 | 2.0 | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 |
| OISP | 37.0 | 54.0 | 45.5 | 14.0 | 13.0 | 13.5 | 3.0 | 6.0 | 4.5 | 7.0 | 6.0 | 6.5 |
| PAPA | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.0 | 7.0 |
| PSMI | 6.0 | 2.0 | 4.0 | 14.0 | 6.0 | 10.0 | 1.0 | 0.0 | 0.5 | 2.0 | 1.0 | 1.5 |
| MISP | 0.0 | 0.0 | 0.0 | 0.0 | 10.0 | 5.0 | 1.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 |
| COSP | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.0 | 24.0 | 18.5 | 3.0 | 3.0 | 3.0 |
| ACLO | 1.0 | 1.0 | 1.0 | 4.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 9.0 | 6.0 | 7.5 |
| MIPP | 0.0 | 0.0 | 0.0 | 7.0 | 3.0 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| AEDI | 1.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EPLO | 1.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 1.0 | 4.0 | 2.5 | 1.0 | 0.0 | 0.5 |
| CASP | 0.0 | 0.0 | 0.0 | 4.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DATE | 820709 | 820709 | 820709 | 820720 | 820720 | 820720 | 820804 | 820804 | 820804 | 820818 | 820818 | 820818 |
| TIME | 1410 | 1410 | 1410 | 1340 | 1340 | 1340 | 1345 | 1345 | 1345 | 1250 | 1250 | 1250 |
| STATION | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| TIDE | F1.1 | F1.1 | F1.1 | F1.6 | F1.6 | F1.6 | F1.9 | F1.9 | F1.9 | F1.6 | F1.6 | F1.6 |
| TEMPERATURE | 14.0 | 14.0 | 14.0 | 11.0 | 11.0 | 11.0 | 15.0 | 15.0 | 15.0 | -9.0 | -9.0 | -9.0 |
| SALINITY | 25.0 | 25.0 | 25.0 | 28.0 | 28.0 | 28.0 | 24.0 | 24.0 | 24.0 | -9.0 | -9.0 | -9.0 |
| SLED NO. | 1 | 2 | MEAN | 1 | 2 | MEAN | 1 | 2 | MEAN | 1 | 2 | MEAN |
| TOTAL CALANOIDS | 124 | 188 | | 36 | 42 | | 47 | 23 | | 254 | 218 | |
| NO. IDENTIFIED | 30 | 47 | | 36 | 20 | | 47 | 22 | | 107 | 109 | |
| UCOP | 103.0 | 140.0 | 121.5 | 10.0 | 6.0 | 8.0 | 29.0 | 15.0 | 22.0 | 207.0 | 166.0 | 186.5 |
| CYGR | 0.0 | 0.0 | 0.0 | 16.0 | 19.0 | 17.5 | 4.0 | 1.0 | 2.5 | 12.0 | 8.0 | 10.0 |
| ONSP | 0.0 | 4.0 | 2.0 | 2.0 | 11.0 | 6.5 | 3.0 | 5.0 | 4.0 | 12.0 | 12.0 | 12.0 |
| OISP | 0.0 | 4.0 | 2.0 | 7.0 | 2.0 | 4.5 | 1.0 | 1.0 | 1.0 | 0.0 | 2.0 | 1.0 |
| PAPA | 21.0 | 32.0 | 26.5 | 1.0 | 4.0 | 2.5 | 10.0 | 1.0 | 5.5 | 21.0 | 26.0 | 23.5 |
| COSP | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 4.0 | 3.0 |
| ACLO | 0.0 | 8.0 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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|---|---|---|---|---|---|---|
| DATE | 820909 | 820909 | 820909 | 820929 | 820929 | 820929 |
| TIME | 1300 | 1300 | 1300 | 650 | 650 | 650 |
| STATION | 27 | 27 | 27 | 27 | 27 | 27 |
| TIDE | E3.3 | E3.3 | E3.3 | E2.0 | E2.0 | E2.0 |
| TEMPERATURE | -9.0 | -9.0 | -9.0 | 10.0 | 10.0 | 10.0 |
| SALINITY | -9.0 | -9.0 | -9.0 | 29.0 | 29.0 | 29.0 |
| SLED NO. | 1 | 2 | MEAN | 1 | 2 | MEAN |
| TOTAL CALANOIDS | 408 | 438 | | 60 | 72 | |
| NO. IDENTIFIED | 99 | 98 | | 15 | 71 | |
| UCOP | 232.0 | 225.0 | 228.5 | 32.0 | 32.0 | 32.0 |
| CYGR | 4.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 |
| ONSP | 4.0 | 13.0 | 8.5 | 8.0 | 4.0 | 6.0 |
| NEPL | 0.0 | 4.0 | 2.0 | 0.0 | 1.0 | 0.5 |
| OISP | 37.0 | 76.0 | 56.5 | 8.0 | 11.0 | 9.5 |
| PAPA | 111.0 | 99.0 | 105.0 | 12.0 | 23.0 | 17.5 |
| PSMI | 4.0 | 13.0 | 8.5 | 0.0 | 1.0 | 0.5 |
| COSP | 12.0 | 4.0 | 8.0 | 0.0 | 0.0 | 0.0 |
| ACLO | 4.0 | 4.0 | 4.0 | 0.0 | 0.0 | 0.0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DATE | 820406 | 820406 | 820406 | 820414 | 820414 | 820414 | 820427 | 820427 | 820427 | 820527 | 820527 | 820527 |
| TIME | 1100 | 1100 | 1100 | 920 | 920 | 920 | 1400 | 1400 | 1400 | 1200 | 1200 | 1200 |
| STATION | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 |
| TIDE | E2.3 | E2.3 | E2.3 | E3.3 | E3.3 | E3.3 | E0.3 | E0.3 | E0.3 | E1.6 | E1.6 | E1.6 |
| TEMPERATURE | 7.6 | 7.6 | 7.6 | 7.4 | 7.4 | 7.4 | 8.5 | 8.5 | 8.5 | 10.0 | 10.0 | 10.0 |
| SALINITY | 31.0 | 31.0 | 31.0 | 30.9 | 30.9 | 30.9 | 27.0 | 27.0 | 27.0 | 28.0 | 28.0 | 28.0 |
| SLED NO. | 1 | 2 | MEAN | 1 | 2 | MEAN | 1 | 2 | MEAN | 1 | 2 | MEAN |
| TOTAL CALANOIDS | 100 | 107 | | 47 | 68 | | 24 | 45 | | 167 | 183 | |
| NO. IDENTIFIED | 86 | 98 | | 43 | 62 | | 20 | 43 | | 97 | 97 | |
| UCOP | 30.0 | 42.0 | 36.0 | 14.0 | 13.0 | 13.5 | 8.0 | 15.0 | 11.5 | 28.0 | 34.0 | 31.0 |
| ONSP | 15.0 | 17.0 | 16.0 | 17.0 | 11.0 | 14.0 | 4.0 | 4.0 | 4.0 | 111.0 | 93.0 | 102.0 |
| NEPL | 15.0 | 15.0 | 15.0 | 3.0 | 1.0 | 2.0 | 1.0 | 0.0 | 0.5 | 2.0 | 6.0 | 4.0 |
| OISP | 38.0 | 33.0 | 35.5 | 13.0 | 39.0 | 26.0 | 5.0 | 9.0 | 7.0 | 17.0 | 40.0 | 28.5 |
| PSMI | 1.0 | 0.0 | 0.5 | 0.0 | 3.0 | 1.5 | 4.0 | 13.0 | 8.5 | 3.0 | 0.0 | 1.5 |
| MISP | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.5 | 1.0 | 4.0 | 2.5 | 3.0 | 8.0 | 5.5 |
| MIPP | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.0 | 2.0 | 2.5 |
| SCMI | 1.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| CEAB | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 |

| DATE | 820604 | 820604 | 820604 | 820618 | 820618 | 820618 | 820629 | 820629 | 820629 | 820708 | 820708 | 820708 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIME | 1130 | 1130 | 1130 | 940 | 940 | 940 | 835 | 835 | 835 | 930 | 930 | 930 |
| STATION | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 |
| TIDE | F1.2 | F1.2 | F1.2 | F1.1 | F1.1 | F1.1 | F2.2 | F2.2 | F2.2 | E1.9 | E1.9 | E1.9 |
| TEMPERATURE | -9.0 | -9.0 | -9.0 | 12.0 | 12.0 | 12.0 | 11.5 | 11.5 | 11.5 | -9.0 | -9.0 | -9.0 |
| SALINITY | -9.0 | -9.0 | -9.0 | 30.0 | 30.0 | 30.0 | 27.0 | 27.0 | 27.0 | -9.0 | -9.0 | -9.0 |
| SLED NO. | 1 | 2 | MEAN | 1 | 2 | MEAN | 1 | 2 | MEAN | 1 | 2 | MEAN |
| TOTAL CALANOIDS | 27 | 32 | | 72 | 34 | | 76 | 116 | | 336 | 256 | |
| NO. IDENTIFIED | 24 | 29 | | 35 | 16 | | 72 | 110 | | 21 | 12 | |
| UCOP | 3.0 | 2.0 | 2.5 | 23.0 | 20.0 | 21.5 | 48.0 | 79.0 | 63.5 | 0.0 | 0.0 | 0.0 |
| CYGR | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 320.0 | 235.0 | 277.5 |
| ONSP | 1.0 | 0.0 | 0.5 | 29.0 | 6.0 | 17.5 | 6.0 | 6.0 | 6.0 | 0.0 | 0.0 | 0.0 |
| NEPL | 18.0 | 19.0 | 18.5 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.5 | 0.0 | 0.0 | 0.0 |
| OISP | 3.0 | 8.0 | 5.5 | 12.0 | 6.0 | 9.0 | 4.0 | 9.0 | 6.5 | 0.0 | 0.0 | 0.0 |
| PAPA | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.0 | 13.0 | 14.5 | 0.0 | 0.0 | 0.0 |
| PSMI | 0.0 | 1.0 | 0.5 | 6.0 | 2.0 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| COSP | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 3.0 | 2.0 | 0.0 | 0.0 | 0.0 |
| ACLO | 1.0 | 2.0 | 1.5 | 2.0 | 0.0 | 1.0 | 0.0 | 3.0 | 1.5 | 0.0 | 0.0 | 0.0 |
| MEPA | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21.0 | 10.5 |
| MIPP | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 1.0 | 0.0 | 0.0 | 0.0 |
| EUAM | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.0 | 0.0 | 8.0 |
| CEAB | 1.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EUAF | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DATE | 820720 | 820720 | 820720 | 820804 | 820804 | 820804 | 820818 | 820818 | 820818 | 820909 | 820909 | 820909 |
| TIME | 912 | 912 | 912 | 935 | 935 | 935 | 919 | 919 | 919 | 940 | 940 | 940 |
| STATION | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 |
| TIDE | E1.1 | E1.1 | E1.1 | E1.4 | E1.4 | E1.4 | E0.8 | E0.8 | E0.8 | F3.7 | F3.7 | F3.7 |
| TEMPERATURE | 11.0 | 11.0 | 11.0 | 12.0 | 12.0 | 12.0 | -9.0 | -9.0 | -9.0 | 11.0 | 11.0 | 11.0 |
| SALINITY | 28.0 | 28.0 | 28.0 | 28.0 | 28.0 | 28.0 | -9.0 | -9.0 | -9.0 | 29.0 | 29.0 | 29.0 |
| SLED NO. | 1 | 2 | MEAN | 1 | 2 | MEAN | 1 | 2 | MEAN | 1 | 2 | MEAN |
| TOTAL CALANOIDS | 509 | 424 | | 256 | 96 | | 400 | 656 | | 235 | 344 | |
| NO. IDENTIFIED | 63 | 95 | | 64 | 24 | | 50 | 81 | | 104 | 103 | |
| UCOP | 24.0 | 31.0 | 27.5 | 16.0 | 28.0 | 22.0 | 32.0 | 8.0 | 20.0 | 142.0 | 261.0 | 201.5 |
| CYGR | 453.0 | 323.0 | 388.0 | 232.0 | 44.0 | 138.0 | 344.0 | 592.0 | 468.0 | 0.0 | 0.0 | 0.0 |
| ONSP | 0.0 | 22.0 | 11.0 | 4.0 | 8.0 | 6.0 | 0.0 | 24.0 | 12.0 | 5.0 | 3.0 | 4.0 |
| OISP | 16.0 | 18.0 | 17.0 | 4.0 | 4.0 | 4.0 | 0.0 | 0.0 | 0.0 | 29.0 | 43.0 | 36.0 |
| PAPA | 0.0 | 22.0 | 11.0 | 0.0 | 0.0 | 0.0 | 8.0 | 24.0 | 16.0 | 59.0 | 37.0 | 48.0 |
| PSMI | 0.0 | 4.0 | 2.0 | 0.0 | 4.0 | 2.0 | 16.0 | 0.0 | 8.0 | 0.0 | 0.0 | 0.0 |
| COSP | 8.0 | 0.0 | 4.0 | 0.0 | 4.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| ACLO | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| AEDI | 8.0 | 0.0 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| CALU | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.0 | 4.0 | 0.0 | 0.0 | 0.0 |
| TODI | 0.0 | 4.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

| | | | | | | |
|---|---|---|---|---|---|---|
| DATE | 820414 | 820414 | 820414 | 820504 | 820504 | 820504 |
| TIME | 1040 | 1040 | 1040 | 910 | 910 | 910 |
| STATION | 32 | 32 | 32 | 32 | 32 | 32 |
| TIDE | E2.8 | E2.8 | E2.8 | E2.3 | E2.3 | E2.3 |
| TEMPERATURE | -9.0 | -9.0 | -9.0 | 9.0 | 9.0 | 9.0 |
| SALINITY | -9.0 | -9.0 | -9.0 | 26.5 | 26.5 | 26.5 |
| SLED NO. | 1 | 2 | MEAN | 1 | 2 | MEAN |
| TOTAL CALANOIDS | 66 | 57 | | 52 | 37 | |
| NO. IDENTIFIED | 47 | 57 | | 48 | 35 | |
| UCOP | 15.0 | 14.0 | 14.5 | 16.0 | 8.0 | 12.0 |
| ONSP | 15.0 | 7.0 | 11.0 | 2.0 | 3.0 | 2.5 |
| NEPL | 1.0 | 0.0 | 0.5 | 1.0 | 0.0 | 0.5 |
| OISP | 29.0 | 32.0 | 30.5 | 25.0 | 17.0 | 21.0 |
| PSMI | 0.0 | 3.0 | 1.5 | 4.0 | 1.0 | 2.5 |
| MISP | 6.0 | 1.0 | 3.5 | 1.0 | 6.0 | 3.5 |
| ACLO | 0.0 | 0.0 | 0.0 | 2.0 | 2.0 | 2.0 |
| TODI | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.5 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| DATE | 820709 | 820709 | 820709 | 820721 | 820721 | 820721 | 820818 | 820818 | 820818 |
| TIME | 1215 | 1215 | 1215 | 930 | 930 | 930 | 1233 | 1233 | 1233 |
| STATION | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 |
| TIDE | E1.9 | E1.9 | E1.9 | E1.1 | E1.1 | E1.1 | F1.2 | F1.2 | F1.2 |
| TEMPERATURE | 15.0 | 15.0 | 15.0 | -9.0 | -9.0 | -9.0 | 15.0 | 15.0 | 15.0 |
| SALINITY | 5.0 | 5.0 | 5.0 | -9.0 | -9.0 | -9.0 | 18.0 | 18.0 | 18.0 |
| SLED NO. | 1 | 2 | MEAN | 1 | 2 | MEAN | 1 | 2 | MEAN |
| TOTAL CALANOIDS | 0 | 2 | | 4 | 0 | | 104 | 68 | |
| NO. IDENTIFIED | 0 | 1 | | 1 | 0 | | 48 | 31 | |
| UCOP | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 87.0 | 31.0 | 59.0 |
| ONSP | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 2.0 | 2.0 |
| OISP | 0.0 | 0.0 | 0.0 | 4.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 |
| PAPA | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.0 | 11.0 | 11.0 |
| UNCY | 0.0 | 2.0 | 1.0 | 0.0 | 0.0 | 0.0 | 4.0 | 24.0 | 14.0 |

| | | | |
|---|---|---|---|
| DATE | 820323 | 820323 | 820323 |
| TIME | 1415 | 1415 | 1415 |
| STATION | 281 | 281 | 281 |
| TIDE | F3.6 | F3.6 | F3.6 |
| TEMPERATURE | -9.0 | -9.0 | -9.0 |
| SALINITY | -9.0 | -9.0 | -9.0 |
| SLED NO. | 1 | 2 | MEAN |
| TOTAL CALANOIDS | 100 | 62 | |
| NO. IDENTIFIED | 80 | 62 | |
| UCOP | 35.0 | 12.0 | 23.5 |
| ONSP | 0.0 | 3.0 | 1.5 |
| OISP | 55.0 | 43.0 | 49.0 |
| PSMI | 10.0 | 4.0 | 7.0 |

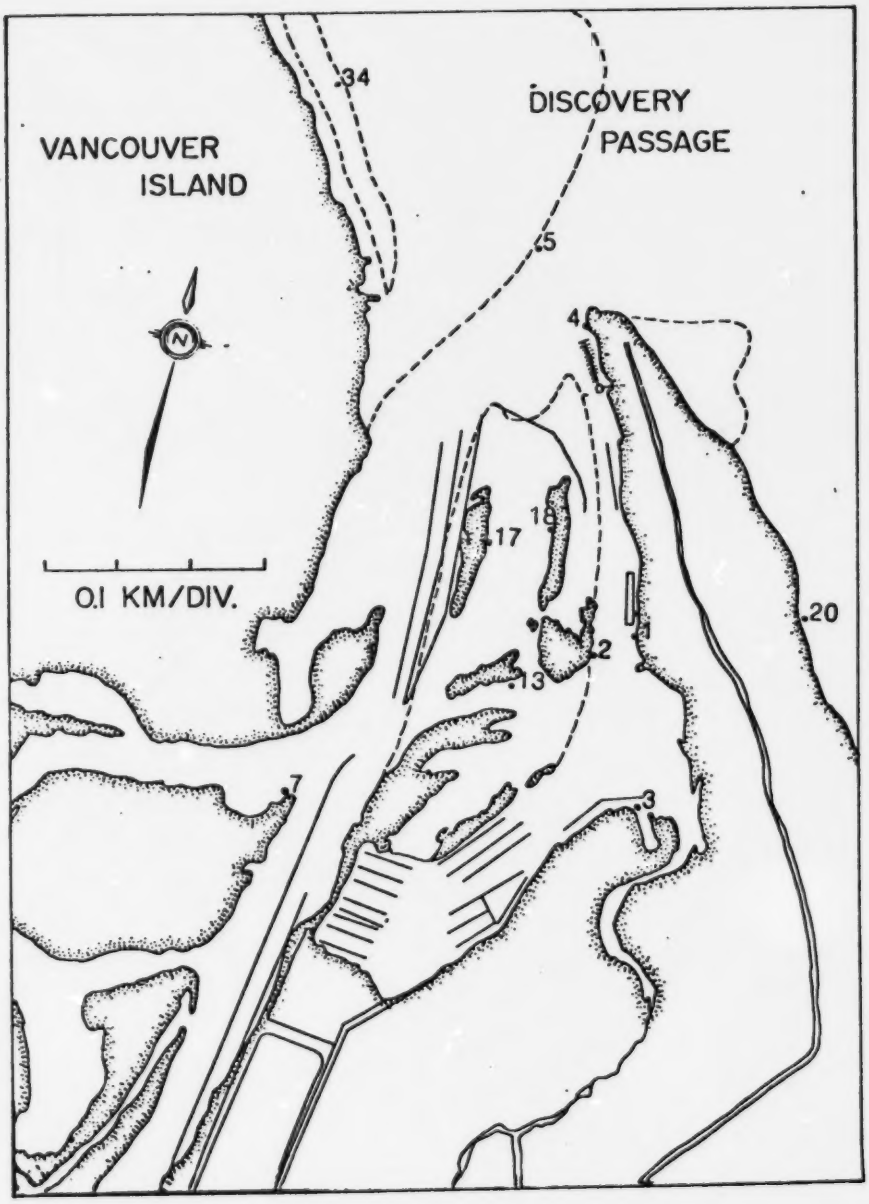


Fig. 1. Estuarine & transition zone station locations.

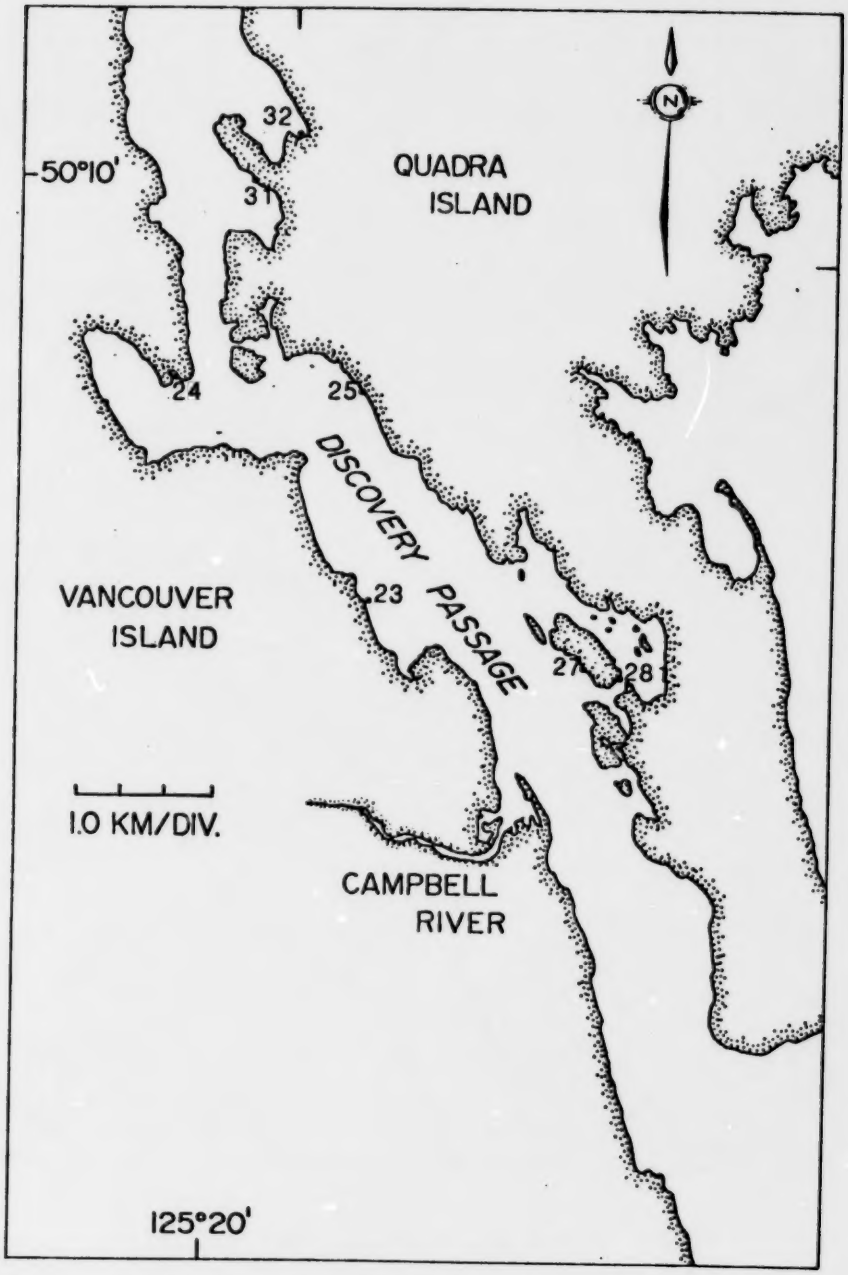


Fig. 2. Marine zone station locations.